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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,766	10/20/2003	Johannes A. Pardoen	117553	9570
25944	7590	05/17/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER SHOSHO, CALLIE E	
			ART UNIT	PAPER NUMBER
			1714	
			MAIL DATE	DELIVERY MODE
			05/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/687,766

**Applicant(s)**

PARDOEN ET AL.

**Examiner**

Callie E. Shosho

**Art Unit**

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9, 10, 13-18 and 20-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 10, 13-18, 20, 22-25, 28, 30-33, 35 and 36 is/are rejected.
- 7) ☒ Claim(s) 21, 26, 27, 29 and 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

**Continued Examination Under 37 CFR 1.114**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/14/07 has been entered.

**Priority**

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Europe on 10/29/02. It is noted, however, that applicant has not filed a certified copy of the application as required by 35 U.S.C. 119(b).

**Claim Rejections - 35 USC § 112**

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 9, 13-15, 24, 32, and 35-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claim 9 is drawn to a polyamine derivative given by the formula II that comprises "L" substituent and recites "index s represents an integer of 1 to 10 wherein if s is 1, the amine-specific reagent is further reacted with an amine modifier given by the formula III". The scope of claim 9 is confusing given that the claim is drawn to polyamine derivative but also recites process steps, i.e. reacting L with amine modifier, and thus, it is not clear what is being claimed - a polyamine of formula II or process of reacting this polyamine with amine modifier. Clarification is requested.

Similar confusion arises with respect to claim 36 which recites similar claim language.

(b) Claim 24, which depends on claim 20, recites the limitation "the amine modifier" in line 4. There is insufficient antecedent basis for this limitation in the claim given that there is no disclosure of amine modifier in claim 20.

Similar lack of antecedent basis is found in claim 32, which depends on claim 28, and recites the limitation "the amine modifier" in line 4. There is insufficient antecedent basis for this limitation in the claim given that there is no disclosure of amine modifier in claim 28.

(c) Claim 35, which depends on claim 28, recites the limitations "the one or more -OH group" in line 2 and "the matrix-compatible moiety" in line 5. There is insufficient antecedent basis for these limitations in claim 28 given that there is no disclosure of -OH group or matrix compatible moiety in claim 28.

Should the dependency of claim 35 be changed from claim 28 to claim 34?

**Claim Rejections - 35 USC § 102**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-7, 10, 16-18, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Schipfer et al. (U.S. 4,563,515).

Schipfer et al. disclose process comprising reacting polyamine having primary and secondary amino groups with hydroxy carboxylic acid or lactone to form product, i.e. polyamine derived compound, which is then reacted with epoxy resin having at least 2 epoxy groups, i.e. bifunctional amine specific reagent, and amine modifier such as N,N-dimethyl-1,3-propanediamine, i.e. corresponding to modifier of presently claimed formula III, to form intermediate product. There is also disclosed further step wherein the intermediate product is reacted with polycaprolactone which would inherently attach a matrix compatible moiety to form product, i.e. polyamine derivative. It is disclosed that the epoxy groups of the epoxy resin are reacted with the secondary amine in a ratio of 0.1-1 amino groups per available epoxy group. It is further noted that the polyamine includes diethylene triamine which is identical to polyamine of presently claimed formula I when W is amine, R<sup>1</sup> is C<sub>2</sub> alkylene, R<sup>3</sup> is hydrogen, q is 1, and R<sup>2</sup> is C<sub>2</sub> alkylene. There is also disclosed coating composition, i.e. paint, containing the above polyamine derivative. Attention is drawn to col.5, lines 35-44 of Schipfer et al. which discloses reacting 1 mole diethylene triamine (DETA) with 2.1 moles caprolactone (CPL) to form amine which is then reacted in example 3 with epoxy resin and N,N-dimethyl-1,3-propanediamine

(col.1, line 61-col.2, line 44, col.2, line 67-col.3, line 17, col.3, lines 42-53 and 59-60, col.3, line 66-col.4, line 16, col.5, lines 35-44, and col.8, lines 10-28).

Given that the process of Schipfer et al. includes reaction with both bifunctional amine-specific reagent and amine modifier as presently claimed, it is clear that in the second step, an intermediate containing at least two polyamine residue and at least one amine modifier residue is inherently formed which would be linked by the bifunctional amine-specific reagent. Further, although there is no specific formula given for the polyamine derivative, given that Schipfer et al. disclose process as presently claimed, it is clear that the polyamine derivative would inherently possess structure as set forth in presently claimed formula II. Additionally, although there is no disclosure that the polyamine derivative is a pigment dispersant, given that the polyamine derivative is formed by identical process as presently claimed, it is clear that the polyamine derivative would each inherently function as a pigment dispersant.

While there is no disclosure that the coating composition is a printing ink formulation as presently claimed, applicants attention is drawn to MPEP 2111.02 which states that "if the body of a claim fully and intrinsically sets forth all the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction". Further, MPEP 2111.02 states that statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the purpose or intended use results in a structural difference between the claimed invention and the prior art. Only if such structural

difference exists, does the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is the examiner's position that the preamble does not state any distinct definition of any of the claimed invention's limitations and further that the purpose or intended use, i.e. printing ink, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art composition and further that the prior art structure which is a composition identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

In light of the above, it is clear that Schipfer et al. anticipate the present claims.

7. Claims 20, 22-23, 25, 28, 30-31, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Honig et al. (U.S. 5,369,190).

Honig et al. disclose process comprising reacting polyamine, i.e. diamine, triamine, or tetramine, with cyclic carbonate to form hydroxyl-functional carbamate compound, i.e. polyamine derived compound, which is then reacted with diisocyanate, i.e. bifunctional amine-specific reagent, to form intermediate product. Attention is drawn to Table 1 that discloses reacting 1 mol diethylene triamine (DETA) with 3 mol ethylene carbonate which product is then reacted with diisocyanate as seen in Table 3. From this example, it is calculated that amount of ethylene carbonate, i.e. 3 moles, is 1 times the number of  $\text{NH}_2$  functional groups of the polyamine, i.e. 3. It is noted that diethylene triamine is identical to polyamine of presently claimed formula I when W is amine,  $\text{R}^1$  is  $\text{C}_2$  alkylene,  $\text{R}^3$  is hydrogen, q is 1, and  $\text{R}^2$  is  $\text{C}_2$  alkylene (col.1, lines 48-63, col.2, lines 13-20 and 32-48, and col.2, line 67-col.3, line 9). Given

that Honig et al. disclose reaction with bifunctional amine-specific reagent as presently claimed, it is clear the intermediate product would inherently possess two or more polyamine residues as presently claimed.

In light of the above, it is clear that Honig et al. anticipate the present claims.

8. Claims 9 and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Honig et al. (U.S. 5,369,190).

Honig et al. disclose process comprising reacting polyamine, i.e. diamine, triamine, or tetramine, with cyclic carbonate to form hydroxyl-functional carbamate compound, i.e. polyamine derived compound, which is then reacted with diisocyanate, i.e. bifunctional amine-specific reagent, to form intermediate product. Attention is drawn to Table 1 that discloses reacting 2 mol diethylene triamine (DETA) with 3 mol ethylene carbonate which product is then reacted with diisocyanate as seen in Table 3. From this example, it is calculated that amount of ethylene carbonate, i.e. 3 moles, is 1 times the number of  $\text{NH}_2$  functional groups of the polyamine, i.e. 3. It is noted that diethylene triamine is identical to polyamine of presently claimed formula I when W is amine,  $\text{R}^1$  is  $\text{C}_2$  alkylene,  $\text{R}^3$  is hydrogen, q is 1, and  $\text{R}^2$  is  $\text{C}_2$  alkylene. Further, (col.1, lines 48-63, col.2, lines 13-20 and 32-48, and col.2, line 67-col.3, line 9). Given that Honig et al. disclose reaction with bifunctional amine-specific reagent as presently claimed, it is clear the intermediate product would inherently possess at least two polyamine residues linked by the bifunctional amine-specific reagent as presently claimed.

Although there is no specific formula given for the polyamine derivative, given that Honig et al. disclose process as presently claimed, it is clear that the polyamine derivative would



inherently possess structure as set forth in presently claimed formula II. Further, although there is no disclosure in Honig et al. that the intermediate is a pigment dispersant, given that the intermediate is formed by identical process as presently claimed, it is clear that the intermediate would inherently function as a pigment dispersant.

While there is no disclosure that the coating composition is a printing ink formulation as presently claimed, applicants attention is drawn to MPEP 2111.02 which states that "if the body of a claim fully and intrinsically sets forth all the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction". Further, MPEP 2111.02 states that statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the purpose or intended use results in a structural difference between the claimed invention and the prior art. Only if such structural difference exists, does the recitation serve to limit the claim. If the prior art structure is capable of performing the intended use, then it meets the claim.

It is the examiner's position that the preamble does not state any distinct definition of any of the claimed invention's limitations and further that the purpose or intended use, i.e. printing ink, recited in the present claims does not result in a structural difference between the presently claimed invention and the prior art composition and further that the prior art structure which is a composition identical to that set forth in the present claims is capable of performing the recited purpose or intended use.

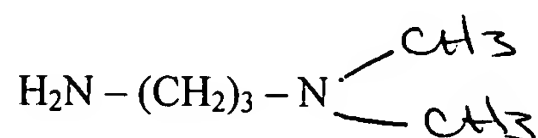
In light of the above, it is clear that Honig et al. anticipate the present claims.

**Response to Arguments**

9. Applicants' arguments filed 2/14/07 have been fully considered but they are not persuasive.

Specifically, applicants argue that Schipfer et al. is not a relevant reference against present claims 1 and 36 given that there is no disclosure in Schipfer et al. of amine modifier as required in these claims.

However, it is noted that Schipfer et al. disclose (col.3, line 66-col.4, line 1 and col.4, lines 6-8) amine modifier that is N,N-dimethyl propanediamine-1,3 which has the formula:



This amine modifier appears to be identical to the amine modifier of presently claimed formula III when  $y = z = 0$ ,  $x = 1$ , and Y is  $(\text{CH}_2)_3 - \text{N} \begin{array}{l} \diagup \text{CH}_3 \\ \diagdown \text{CH}_3 \end{array}$ . That is, when  $y = z = 0$  and  $x = 1$ , the amine modifier of presently claimed formula III is of the formula  $\text{YNH}_2$  wherein Y is an aliphatic group having 2 to 10 carbon atoms containing one or more tertiary amine groups. Schipfer et al. also disclose amine modifier of the formula  $\text{YNH}_2$  wherein Y is  $(\text{CH}_2)_3 - \text{N} \begin{array}{l} \diagup \text{CH}_3 \\ \diagdown \text{CH}_3 \end{array}$  which is an aliphatic group having 5 carbon atoms and a tertiary amine group. Further, it is noted that N,N-dimethyl propanediamine-1,3 is identical to amine modifier of the present invention (see page 10, lines 12-13). Thus, it appears that the amine modifier of Schipfer et al. is identical to that presently claimed.

In light of the above, Schipfer et al. remains a relevant reference against the present claims.

Applicants argue that Honig et al. is not a relevant reference against the present claims given that Honig et al. teach the use of diisocyanates that are half-blocked by monohydroxy compounds and thus do not contain two or more amine specific functional groups as required in the present claims.

It is agreed that Honig et al. teach the use of diisocyanates that are half-blocked by monohydroxy compounds. However, it is also significant to note that Honig et al. also disclose that the diisocyanates have an unblocking temperature below 180 °C (col.1, line 56). Further, Hong et al. disclose reacting polyamine with cyclic carbonate to form hydroxy-functional carbamate compound, i.e. polyamine derived compound, which is then reacted with the diisocyanate at 60-120 °C (col.2, lines 32-39).

Given that the reaction with diisocyanate takes place at temperature below 180 °C, which is the unblocking temperature of the diisocyanate, it is clear that when the diisocyanate is utilized in the reaction to produce the polyamine derivative as present claimed, the diisocyanate is unblocked and thus, does in fact contain two or more amine specific functional groups as required in the present claims.

*Allowable Subject Matter*

10. Claims 21, 26-27, 29, and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 21, 26-27, 29, and 34 would be allowable if rewritten in independent form as described above for the following reasons.

Schipfer et al. (U.S. 4,563,515) disclose process comprising reacting polyamine having primary and secondary amino groups with hydroxy carboxylic acid or lactone to form product, i.e. polyamine derived compound, which is then reacted with epoxy resin having at least 2 epoxy groups, i.e. bifunctional amine specific reagent, and amine modifier such as N,N-dimethyl-1,3-propanediamine, i.e. corresponding to modifier of presently claimed formula III, to form intermediate product. There is also disclosed further step wherein the intermediate product is reacted with polycaprolactone which would inherently attach a matrix compatible moiety to form product, i.e. polyamine derivative.

However, Schipfer et al. disclose reacting the polyamine-derived compound with reagent that is epoxy which is outside the scope of present claims 21, 26, and 27. Further, there is no disclosure or suggestion in Schipfer et al. of reacting the polyamine-derived compound with polyisocyanate as required in each of present claims 29 and 34.

Honig et al. (U.S. 5,369,190) disclose process comprising reacting polyamine, i.e. diamine, triamine, or tetramine, with cyclic carbonate to form hydroxyl-functional carbamate compound, i.e. polyamine derived compound, which is then reacted with diisocyanate, i.e. bifunctional amine-specific reagent, to form intermediate product.

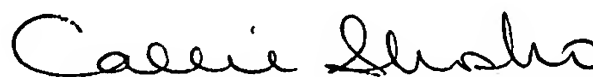
However, there is no disclosure or suggestion in Honig et al. of amine modifier as required in present claims 21 and 29 and no disclosure or suggestion of reacting the -OH group of the polyamine derived compound or intermediate to attach a matrix-compatible moiety of more than 250 as required in present claims 26-27 and 34.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CS  
5/11/07

  
Callie E. Shosho  
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